

# Index

---

144/A issuances. *See* Regulation 144/A  
issuances  
2030 Agenda for Sustainable  
Development, adoption, 131–132

## A

Aberdeen Standard Investments, 135  
A:B Loan Program, 70  
ABN Amro, 73, 121  
Acceptance risk, mitigation, 54–55  
Account agreement, 47–49  
Accounting treatment, impact, 12  
African Development Bank, 126  
Agricultural Bank of China, 171  
AIG (private insurance underwriter), 88  
Al Dur Independent Water and Power  
Project (Bahrain), financing, 179  
Amendments, voting rights  
(understanding), 46  
Amortization, flexibility, 148–149  
Anchor lender, identification, 92  
Annual budget review/approval, 51  
Annual debt service coverage ratio  
(ADSCR), 101  
dividend distribution test, 111  
increase, 106–107  
minimum lender requirement, 105  
production, stability, 108–109  
project lender focus, 104  
Approvals/permits, obtaining, 30  
Argentina, sovereign debt  
default/currency devaluation, 5  
ASEAN countries, foreign debt-to-GDP  
levels (increase), 64  
Asia  
infrastructure needs, 13–14  
project bonds, scarcity, 158  
Asia Development Bank (ADB), 21, 154  
BDB type, 68  
China voting interest, 165

infrastructure investment report  
requirements, 13  
Asia Infrastructure Investment Bank  
(AIIB), 125, 126  
BRI  
funding, 170  
relationship, 173–174  
establishment, reasons, 174  
financing, 165  
initiative, purpose, 135  
international financial institutions,  
collaboration, 171  
Asian currency crisis (1997), 21–22  
currency collapse, impact, 64  
currency devaluation, impact, 65–66  
impact, 65–68  
mismatch, 63–65  
recession, impact, 67–68  
short-term capital (hot money), impact,  
63–64  
Asian ECAs, dominance (increase), 126  
Asian Independent Power Plant (IPP)  
experience, project finance track record,  
62–63  
imported fossil fuel dependence, 65  
projects, structuring, 64–65  
Asian Tigers, 63  
Asset sales, limitations, 50  
Assignment pledge, 50  
Asymmetric information (reduction),  
project finance (usage), 3  
Availability-based contracts, 29, 43  
Axis (private insurance underwriter),  
88

## B

Back-ended amortization, 148  
Back-levered financings, usage, 180–182  
Back-levered lenders security,  
components, 181–182  
Back-levered loan structure, result, 182

- Backup financing plan, existence, 82
  - Balance sheet (financial model
    - input/output sheet), 103
  - Balance sheet corporate financing, usage
    - (contrast), 2
  - Balloon payment, repayment, 111
  - Bankable infrastructure projects, scarcity, 144
  - Bank of America, 73
  - Bank of China, project finance market
    - involvement, 88
  - Bankruptcy-remote project company,
    - restrictions, 40
  - Banks
    - dual role, 46–47
    - financing, 152
  - Basel III, 143
  - Belt and Road Initiative (BRI) (China),
    - 161. *See also* China-Pakistan Economic Corridor
  - AIIB
    - financing, 165
    - relationship, 173–174
  - background/scope, 161–171
  - corridors, 162–163
  - cross-border currency, preference, 172
  - debt sustainability, concerns, 168
  - energy, investment, 166–167
  - export markets, creation, 163–164
  - funding, increase, 170–171
  - Gwadar Port, investment, 167
  - infrastructure needs, 165–170
  - infrastructure projects
    - funding, 171
    - RMB financing, 165
  - large-scale infrastructure projects, role, 164
  - manufacturing capacity, excess, 164
  - map, 162
  - objectives, 163–165
  - political/economic integration, increase, 163
  - Renminbi internationalization, 164–165
  - Special Economic Zones (SEZ),
    - investment, 167
  - transportation infrastructure,
    - investment, 167
  - transportation/logistics infrastructure
    - projects, 162–163
  - Bilateral development banks (BDBs), 85
    - guarantee product development, 183
    - project finance, importance, 4
    - project financing, 62
    - role, 68–70
  - Bond. *See* Project bonds
    - credit enhancement, 182–187
    - credit rating requirements, 149
    - investors, make-whole provisions, 90
    - issues, usages (disadvantages), 90
    - portfolio exposure, 151–152
  - Bond financings
    - benefits, 90
    - challenges, 89
  - Borrowers, objectives, 103–104
  - Break-even commodity price, lender
    - analysis, 110
  - Bretton Woods system/convention, 164, 173
  - BRI. *See* Belt and Road Initiative
  - BRICS New Development Bank (NDB),
    - 125, 126
    - BRI funding, 170
    - joint/equal shareholding, 172–173
  - “Bridging Global Infrastructure Gaps”
    - (McKinsey study), 143
  - Brookfield Asset Management, investor
    - base, 153
  - Brownfield development project, 113
  - Build-operate-transfer (BOT)
    - project, 156
    - scheme, 155
- C**
- CalPERS, pension fund activity, 152
  - Campos Basin, deep-water fields
    - (Petrobras development investments), 54
  - Capex reduction opportunities, Petrobras
    - focus, 58
  - Capital costs (financial model
    - input/output sheet), 102
  - Capital markets imperfections, reduction, 2
  - Capital, raising/deploying (difficulty), 134
  - Capital stack, tax equity (importance), 180–181
  - Cash flow
    - contract-based cash flow lending, 104
    - cushion, quantum, 104
    - financial model input/output sheet, 103

- stability, 105
- waterfall, 47–49
- Cash flow available for debt service (CFADS), projection/matching, 108–109
- Cash preservation, 48
- Cash sweeps/traps, 44, 51, 110–111
- CBI. *See* Climate Bond Initiative
- CDC (BDB type), 85
- Central Power Purchasing Authority (Pakistan electricity buyer), 168
- CEXIM. *See* Export-Import Bank of China
- CFADS. *See* Cash flow available for debt service
- Change orders, 43
- Chevron, project financing (avoidance), 3–4
- China
  - Belt and Road Initiative (BRI). *See* Belt and Road Initiative.
  - economic infrastructure spending, contrast, 11
  - financing strategy, 170–172
  - foreign currency reserves, 171
  - GDP growth, 163–165
  - infrastructure investor, ranking, 13–14
  - infrastructure loans, 170
- China Construction Bank, 171
- China Development Bank (CDB), 167
  - infrastructure loans, 170
- China Export and Credit Insurance Guarantee Corporation (Sinosure), 167–168
- China-Pakistan Economic Corridor (CPEC), 163
  - announcement, 166
  - examination, 165–170
  - investment arenas, 166–167
  - project financings, 169
- Climate bond/green bond, World Bank/EIB issuance, 129
- Climate Bond Initiative (CBI), 129, 131
- Climate change (global challenge), 12
- Collateral agent, type, 46
- Commercial banks
  - project financing role, 87–88
  - RFPs, issuance, 86
- Commercial interest reference rates (CIRRs), 69
- Commercial risks, 18
- Commercial viability, contractual viability (contrast), 19
- Commodity output, international market price, 28
- Commodity price
  - break-even commodity price, lender analysis, 110
  - linking/indexing, 29
  - projections, usage, 28
  - risk exposure, 105
- Common terms agreement (CTA), 46–47
- Competitive bidding
  - absence (Dabhol), 79
  - transparency (IPP), 68
- Completion risk, 22–25
- Concession agreements, 42–43
- Concession contracts, 29–30, 43
- Construction
  - activities, commencement, 30
  - completion
    - cost overrun/delay, 24
    - performance, inadequacy, 24–25
    - performance tests, variation, 41
  - contracts, 41
  - performance test protocol, variation, 25
  - risk, 22–25
  - site acquisition/access/permits, 23
  - worst-case scenario, estimate, 25
- Contingent lending, 17
- Contract-based cash flow lending, 104
- Contract breach, 88–89
- Contract financing. *See* Project finance
- Contract obligation, modeling (absence), 102
- Contract tail, presence, 19
- Contractual risk allocation, effectiveness, 7
- Contract viability, commercial viability (contrast), 19
- “Cost of Doing Business” (World Bank), 125–126
- Cost-plus agreements, 26
- Cost-plus O&M contract, 42
- Country risk, investor comfort, 89
- Covenants, 49–51
  - EP covenants, 124
  - market standard financial covenants, 50–51
  - package, impact, 8–9
  - restrictiveness, reduction, 146

- Covenants (*continued*)
  - structure, role, 7
  - waivers, 150–151
- Coverage ratios (financial model input/output sheet), 103
- Credit enhancement guarantees, categories, 184
- Credit enhancement instruments, importance, 183
- Creeping expropriation, 21
  - example, 22
- Currency
  - bonds, long-term funding, 186
  - convertibility/transfer (political risk), 69
  - devaluation, impact, 65–66
  - mismatch, 63–65
  - risks, susceptibility (reduction), 22
  - traders, speculative positions, 64
- D**
- Dabhol Power Project (India), case study, 72–80
  - competitive bidding, absence, 79
  - construction risk, 74
  - Enron development, 73
  - India entry strategy, flaws, 77–78
  - location, 73
  - off-taker weakness, 80
  - political risk, 75–76
  - power, price (elevation), 78–79
  - project economics, balance (problems), 78
  - project finance risk analysis, 74–76
  - project outcomes, 76–80
  - project overview/background, 72–74
  - project timeline, rush/aggressiveness, 79
  - revenue risk, 74–75
  - risk allocation, 78
  - white elephant project, 77
  - World Bank analysis, 75–76
- Data input/assumptions (financial model input/output sheet), 102
- Deal-ready project investments, risk-adjusted return hurdle requirements (challenge), 135
- Debt
  - calibration, lender ratios, 110
  - capital markets bond refinancing, 179
  - sales, limitations, 50
  - tenor, maximization, 147
  - trap, 168
- Debt Service Coverage Ratio (DSCR), 8
  - level, increase, 44
  - level principal payments, impact, 107–108
  - maintenance, 51
  - minimum, 25, 29
  - sculpted payments, impact, 109
  - test, minimum, 48
- Debt sizing, 101
  - loan amortization, relationship, 106–109
  - sculpting, relationship, 104–106
- Debt-to-equity ratio (leverage ratio), 104–105
  - re-leverage, 44
- Deep and dark quasi-equity, 47
- Default events
  - triggering, 178–179
  - understanding, 46
- DEG (BDB type), 68, 85
- Depreciation (financial model input/output sheet), 103
- Developed/bankable projects, pipeline (improvement), 12
- Developing member countries (DMCs), ADB study, 13
- Development financial institutions (DFIs), 146, 154
  - financing, 152
  - project finance, importance, 4
- Direct agreements, 49
- Direct financial risk, mitigation, 20
- Disbursement procedures, understanding, 46
- Diversion risk, 22
- Dividends
  - distribution test, 48–49, 111
  - restrictions, 51
- Door-to-door loan tenor, 114
- Dot-com Internet asset bubble collapse, 5
- DSRA, 47
- Due diligence
  - addition, requirement, 3
  - approaches, 92
- Dutch State Treasury Agency, green bond issuer, 129
- E**
- EBRD, guarantees, 183
- Economies of scale, achievement, 145
- Ecuador, OCP pipeline project (problems), 30–31

- EDF International (EDFI), project sponsor, 93–94
- Emerging markets  
 asset impact/financial performance, 134–135  
 bond financings, challenges, 89  
 financing, sources, 81  
 infrastructure  
 flows, increase, 134–135  
 infrastructure gap, 12–13  
 widening, cause, 11–12  
 local capital markets, 143  
 multi-sourced financing strategies, 91–92  
 project finance  
 bonds, 143  
 track record, 61  
 project financing, risks/challenges, 61
- Energy banking structure, 95
- Engineering, Procurement, and Construction (EPC) contractor  
 experience/record, importance, 23–24  
 responsibility, focus, 41
- Engineering, Procurement, and Construction (EPC) contracts  
 date-certain turnkey EPC contracts (construction risk mitigation measure), 232  
 lump-sum EPC contract, 54  
 usage, 7
- Enron Corporation  
 bankruptcy, 76  
 corporate culture, aggressiveness, 77  
 Dabhol financial failure, 72  
 default, impact, 5, 6
- Environmental and Social (E&S) risk, 95–96  
 determination/assessment/management, 121
- Environmental impact assessment (EIA) analysis, 122–123
- Environmental, Social and Governance (ESG), 119  
 frameworks, MDBs (relationship), 124–126  
 policies  
 alignment, 127  
 inclusion, increase, 120  
 risk assessment/analysis, EPs (impact), 122
- Equator Principle financial institutions (EPFIs), 121–123
- Equator Principles (EPs)  
 action plan, 123  
 application, 121  
 covenants, 124  
 environmental/social assessment, 122–123  
 environmental/social management system, 123  
 environmental/social standards, 123  
 framework, 121–126  
 grievance mechanism, 123  
 independent monitoring/reporting, 124  
 independent review, 123  
 project review/categorization, 122  
 reporting/transparency, 124  
 social/environmental risks, assessment/management, 124  
 stakeholder engagement, 123  
 standards, 31  
 NGO criticisms, 31
- Equator Principles 3 (EP3), adoption, 31
- Equipment sourcing, leverage, 82
- Equipment suppliers, financing, 90
- Equity investment agreements, 39
- Equity IRRs, enhancement, 148
- Equity metrics, 101
- ESG Enhanced Credit Managed Portfolio, 135
- Esty, Benjamin, 2
- Euler Hermes (private insurance underwriter), 88
- Execution risk  
 mitigation, backup financing plan (existence), 82  
 sponsor concern, 103–104
- Export credit agencies (ECAs), 46, 85–87  
 approval process, elongation, 83–84  
 comprehensive cover, 71  
 financing, 152  
 source, 86  
 lending arrangement governance, 86–87  
 PRI policies, political risk coverage, 69  
 project finance (importance), 4  
 project financing, 62  
 source, 90  
 role, 68–70  
 ticket lender identification, 82

- Export-Import Bank of China (CEXIM),
  - 126, 167
  - credit export approach, 86
  - infrastructure loans, 170
- Export-Import Bank of the US, 73, 75
- Expropriation/nationalization risk, 22
- F**
- Federal National Mortgage Association (FNMA), green bond issuer, 129
- Finance agreements (negotiation), lender protection
  - mechanisms/strategies (usage), 51–52
- Financial advisor, usage, 81
- Financial completion tests
  - lender requirement, 25
  - requirement, 8
- Financial crisis (2008)
  - effects, 6–7
  - fiscal austerity effects, 11–12
- Financial distress (reduction), project finance (usage), 3–4
- Financial guarantees, non-honoring, 88–89
- Financial model downside sensitivity analysis, 102
- Financial returns, SDP impact goals (relationship), 127
- Financial risks, 18–19, 31–32
- Financial structuring, 101, 106–109
- Financial terms, negotiation, 7–8
- Financing. *See* Project financing
  - bond issues, usages (disadvantages), 90
  - ECA source, 86
  - financial model input/output sheet, 103
  - sources, emerging markets, 81
- FinDev (Canada), 186
- Fixed-cost agreements, 26
- Fixed-cost O&M contract, 42
- Floating, production, storage, and offloading (FPSO) vessels, 120
- FMO (BDB type), 68, 85
- Force majeure (FM)
  - definitions, consistency, 32
  - events
    - classification, 32
    - performance relief, 40–41
    - provision, 43–44
    - risk, 32–33
- Foreign debt-to-GDP levels, increase, 64
- Foreign exchange (FX) contracts, entry, 32
- Foreign exchange (FX) risks, 31
- Funding sources
  - diversification, 148
  - pursuit/development, 82
- G**
- Geographies standardization, absence, 144–145
- Global annual green bond issuance, 130
- Global Emerging Markets Consortium (GEMS), establishment, 186
- Global Impact Investing Network (GIIN), SDG performance correlation, 132
- Global infrastructure
  - gap, widening (cause), 11–12
  - needs, Global Infrastructure Hub estimates, 10
  - outlook, 9–12
- Global Infrastructure Partners
  - fund, 127
  - investor base, 153
- Government
  - approvals/permits, obtaining, 30
  - debt, increase, 12–13
  - host government agreements, 39
- Green bonds, 129–131
  - global annual green bond issuance, 130
- Green-washing, 131
- Gross domestic product (GDP) increase, infrastructure investment (impact), 9–10
- H**
- Halo effect, 21, 183
  - commercial bank viewpoint, 69
- Hard mini-perms, 178–179
- Hell or high water offtake payments, 43
- Holdco financing, 181
- Host government agreements, 39
- I**
- IBRD, guarantees, 183
- ICBC
  - infrastructure loans, 170
  - project finance market involvement, 88
- IDB Invest
  - BDB type, 68, 69–70
  - loan structure usage, 70
  - PCG provision, 184

- Identify, Assess, Mitigate or Allocate (IAMA), risk analysis/mitigation methodology, 17
- IFC, 71, 121
- A:B loan structure, 70
  - guarantees, 183
  - Impact Investing principles, 127–128
  - investor market framework development, 128
  - lending, consideration (criteria), 84
  - loan structure usage, 70
  - MDB type, 68
  - project loan default, impact, 69
- IFM (fund manager), 152
- Impact investment market, size, 127
- Impact management, operating principles, 128
- Incentive/agency conflicts (reduction), project finance (usage), 3
- Incentives/penalties O&M contract, 42
- Income statement (financial model input/output sheet), 103
- Independent Power Plant (IPPs)
- bilateral deals, negotiation, 72
  - competitive bidding, transparency, 68
  - costs, impact (crisis-related factors), 66t
  - foreign exchange content, 64
  - generating capacity, acceleration (impact), 67
  - payment willingness/ability, contrast, 68
  - regulatory reform, prioritization, 67–68
  - wholesale power tariffs, renegotiation, 66–67
- Independent Power Plants (IPPs)
- private funds, mobilization, 63
  - programs, 62
- Indexation, usage, 64
- Indonesia
- currency crisis, fallout/effect, 65
  - Independent Power Plant (IPP) program capacity, 62
- Industrial Commercial Bank of China, 171
- green bond issuer, 129
- Inflation risks, 31
- Infrastructure. *See* Global infrastructure
- assets, bundling, 12
  - debt funds, 153
  - funds (institutional lender type), 91
  - guarantee products, 182–187
  - investment
    - negative environmental/social impact, 119
    - requirements, ADB report, 13
    - needs (Asia), 13–14
    - project finance/investing, sustainability, 120
- Institutional capital, unlocking, 12, 134–135
- Institutional investors, offsetting impediments, 91
- Institutional lenders, types, 91
- Insurance
- financial model input/output sheet, 103
  - maintenance, 51
  - wraps, 154
- Insurance companies
- institutional lender type, 91
  - investor base, 152–153
- Inter-American Development Bank (IDB Invest), 21
- Interest during construction (IDC), increase, 24
- Interest rate risks, occurrence, 31–32
- Interest rate swap
- providers, contingent project risk, 46–47
- Interest rate swaps
- providing, 32
- Interests, alignment, 50
- Internal rate of return (IRR), 101
- achievement, 103
  - equity IRRs, enhancement, 148
  - financial model input/output sheet, 103
  - increase, 106
  - level principal payments, impact, 107–108
  - measurement, 3
  - project IRR, improvement, 47
  - sculpted payments, impact, 109
- International Capital Markets Association (ICMA)
- Green Bond Principles, 130–131
  - Social Bond Principles, 130
  - Sustainable Bond Principles, 131
- International Container Terminal Services, Inc. (ICTSI) funding, 137–138
- International Finance Corporation (IFC), 21
- International Monetary Fund (IMF), US voting share, 164

- International oil prices, decline, 56
- International Swaps and Derivative Association (ISDA), project company execution, 32
- Investors  
 project bond investor base, 151–153  
 risk-adjusted returns, improvement, 12
- Islamic Development Bank Group, 126
- J**
- Japan, project finance bank market, 88
- Jinping, Xi, 161
- K**
- KEXIM, 126, 156–157  
 project consideration, 85–86
- KfW, green bond issuer, 129
- Korea Development Bank, 126
- K-Sure insurance guarantee, 156–157
- L**
- Lake Turkana Wind farm (Kenya), PRG  
 product application, 184
- Laos, anchor lender supervision, 93
- Lenders  
 due diligence process, 44  
 minimum lender ADSCR requirement, 105  
 negotiation points, 49  
 nuisance value, providing, 50  
 objectives, 104  
 protection  
 mechanisms/strategies, 51–52  
 offtake contract provisions, 43  
 reserve tail requirement, 27
- Lending institutions, mix  
 (identification/selection), 83–84
- Level principal payments, impact, 107–108
- Leverage  
 increase, support, 105  
 maximization, 103  
 ratio, 104
- Limited recourse financing, 19–20  
 usage, 1
- Liquefied natural gas (LNG)  
 demand expectation, 112  
 export, 86  
 large-scale bond refinancings, 145  
 projects, construction period, 22  
 regasification plants (processing service), 29
- Liquidated damages (LDs), 7  
 construction delay usage, 24  
 penalties, 40–41
- Lloyds (private insurance underwriter), 88
- Loan amortization, debt sizing (relationship), 106–109
- Loan documentation. *See* Project finance
- Loan structure, MDB usage, 70
- Loan terms, maximization, 103
- Local capital markets, 143
- Local currency  
 financing, sourcing, 65  
 project bonds, 154
- London Interbank Offered Rate (LIBOR),  
 funding basis usage, 32
- Long-term bond yields, locking in, 149
- Long-term sales agreement, 28–29
- Long-term sales contract, 42–43
- Loss given default (LGD), 185–186  
 mitigation, 8–9
- Low-cost debt capital, project developer  
 access, 181
- Lump-sum EPC contract, 54
- Lump-sum turnkey contract, usage, 53
- M**
- Macquarie (fund manager), 152
- Macroeconomic risks, 18–19
- Maharashtra State Electricity Board (MSEB)  
 Dabhol power cost, 75  
 PPA payment delay, 76
- Make-whole provisions, 90, 149
- Malaysia, currency crisis (fallout/effect), 65
- Manzanillo Container Port Terminal  
 Project (Mexico) case study, 136–141  
 construction risk, 139  
 environmental risks, 140  
 financial structure, 140  
 political risk, 140  
 project finance risk mitigation analysis, 139–140  
 project outcomes, 140–141  
 project overview/background, 136–139  
 revenue risk, 139–140
- Marketing contracts, 42–43
- Market liquidity, 151–153



- Market risk, 105
  - Market standard financial covenants, 50–51
  - Material regulatory/investment hurdles, impact, 144
  - “Meeting Asia’s Infrastructure Needs” (ADB report), 119
  - Mezzanine financing, 181–182
    - tranche, presence, 47
  - Mezzanine level subordinated debt, subordination, 52
  - Mini-perm construction loans, providing, 91
  - Mini-perm financing, 112
  - Mini-perm financing structures (mini-perms), 177–179
    - types, 178–179
    - usage/application, 178–179
  - Mini-perm project financings, impact, 87–88
  - Mizuho Corporation Bank (lead arranger), 157
  - Mizuho, project finance market involvement, 88
  - M&M natural resource projects, usage, 152
  - Mong Duong 2 Power Project (MDP) (Vietnam) case study, 155–159
    - original 2011 project financing, 156–157
    - project background, 155–156
    - project bond refinancing (2019), 157–159
  - Mong Duong Finance Holdings (MDP), 157–159
  - Mortgage interest, 50
  - Mozal Aluminum Project (Mozambique), PF case study, 33–37
    - construction risk, 35
    - political risk, 35–36
    - project outcomes, 36–37
    - project overview/background, 34
    - revenue risk, 35
    - risk mitigation, 35–36
  - MUFG, project finance market involvement, 88
  - Multilateral development banks (MDBs), 84
    - approval process, elongation, 83–84
    - emergence, 125, 172–174, 186–187
    - ESG frameworks, relationship, 124–126
    - guarantees, 185
      - product development, 183
    - impact, 21
    - infrastructure financing, speed/quantum effects, 125
    - loan structure usage, 70
    - preferred creditor status, 84
    - PRGs/PCGs, partial risk/credit relief, 185
    - PRI coverage, providing, 69–70
    - project finance, importance, 4
    - project financing, 62
    - role, 68–70
  - Multilateral Insurance Guarantee Agency (MIGA), 68, 186
    - NHFO cover, 88–89
  - multi-sourced financing strategies
    - anchor lender supervision, 93
    - World Bank assistance, 93
  - Multi-sourced financing strategies, 91–92
  - Municipal approvals/permits, obtaining, 30
- N**
- Nam Theun 2 (NT2) Hydro Project (Laos), case study, 92–99
    - construction risk, 94
    - currency risk, 95
    - energy banking structure, 95
    - environmental and social (E&S) risk, 95–96
    - financial structure, 96
    - high-value project (Thailand), 97
    - political risk, 96–97
    - project finance risk mitigation, 94–97
    - project financing, 98
    - project outcomes, 97, 99
    - project overview/background, 93–94
    - revenue/hydrology risk, 94–95
    - shareholders, 94
  - Nationalization/expropriation (political risk), 69
  - Natural currency hedges, creation, 67
  - Natural FM events, 32
  - NDB. *See* BRICS New Development Bank
  - Negative carry, 90, 149–150
  - Negative net present value (NPV) projects, initiation (avoidance), 3, 7
  - Negative pledge, 51
  - Net costs, reduction, 2
  - Net present value (NPV), 101

- Non-honoring of financial obligations (NHFO) cover, 88–89
- Non-pro rata loan disbursements, requirement, 46
- Non-recourse financing, usage, 1
- Non-utility generators (NUGs), impact, 2
- Notice to Proceed (NTP), issuance, 23
- O**
- OCP Pipeline project (Ecuador), 121–122
- OECD Consensus, lending arrangement governance, 86–87
- Off credit risk treatment, achievement, 3
- Offshore drilling market, decline, 58–59
- Offtake contract
  - absence, 105
  - agreement, 42–43
    - defining, 27–28
    - provisions, 43
  - structures, types, 28–30
- Offtake revenue risk, 115
- Offtake risk, 27–30
- Off-takers
  - lender requirements, 49
  - state-owned utility off-takers, financial weakness, 67–68
  - weakness (Dabhol case study), 80
- OMRA, 47
- Ontario Teachers (fund manager), 152
- Operating Principles for Impacting Management (Principles), 128
- Operation and maintenance (O&M)
  - company, charter contract, 111
  - contracts, 42
    - form, 26
    - structures, formats, 42
  - natural resource projects, usage, 152
  - risk, 25–26
- Operator, dual role, 25
- Overseas Private Investment Corporation (OPIC), 73, 75
- P**
- Pakistan. *See* Belt and Road Initiative
  - Central Power Purchasing Authority (electricity buyer), 168
  - debt-to-GDP ratio, 168
  - Independent Power Plant (IPP) program, capacity, 62
  - poverty rate index, 168
- Paris Agreement on Climate Change (2016), 129
- Partial credit guarantees (PCGs), 154, 184
  - partial risk/credit relief, 185
- Partial risk guarantees (PRGs), 184
  - partial risk/credit relief, 185
- Partnership flip, 181
- Payback period, 101
- PDVSA, majority ownership interest, 22
- Pension funds
  - institutional lender type, 91
  - investor base, 152–153
- Performance
  - guarantees, usage, 7
  - relief, 40–41
- Petrobras
  - Campos Basin, deep-water fields (development investments), 54
  - capex reduction opportunities, focus, 58
  - corruption scandal (Lava Jato), 56–57
- Philippines
  - currency crisis, fallout/effect, 65
  - Independent Power Plant (IPP) program capacity, 62
- Physical completion tests, requirement, 8
- Physical project assets
  - first lien mortgages, 40
  - mortgage interest/assignment pledge, 50
- Political FM events, 32
- Political risk insurance (PRI)
  - market, 88–89
  - policies (risk mitigation measure), 21
- Political risks, 19, 21–22
  - categories, 21
  - ECA PRI policy coverage, 69
  - host government impact, 69–70
  - impact, variation, 21–22
  - mitigation, 71–72
    - implicit forms, 71–72
    - mitigation effect (halo effect), 21
- Political volatility, costs (increase), 135
- Pooling projects, 145
- Population growth (global challenge), 12
- Port Authority of Manzanillo (APIMAN),
  - port concessions, 138–139
- POSCO Power (Korea), 156
- Post-default project finance loans, loan recovery rate (achievement), 8
- Power projects, construction period, 22

- Power purchase agreement (PPA), 74, 147, 155
  - basis, 94
  - power tariff, 76
- PPP programs, 145
- Preferred creditor status, 183
- Prepayment penalties, 149
- Principal repayment, delay, 148
- Private capital credit enhancement, 182–187
- Private equity (institutional lender type), 91
- Private insurance, lender purchase, 32–33
- Private placement bond issues, securities
  - registration requirements
  - exemption, 147–148
- Proactive agent monitoring, 8
- Probability of default (PD), 185–186
- Processing service, project involvement, 29
- Project
  - agreements
    - connection/dependence, 40–41
    - pledges/assignments, 40
  - cash flows, stability, 105
  - company
    - business activity restriction, 40
    - shares, assignment, 50
  - contracts, changes, 17
  - contractual relationships, leverage, 82
  - development (cash distributions),
    - back-levered lenders (concern), 182
  - documents, compliance, 50
  - due diligence, impact, 7
  - implementation, flexibility (reduction), 90
- IRR
  - improvement, 47
  - maximization, 106
  - pre-agreed target, achievement, 180
- IRR returns, achievement, 83
- lenders, financial model downside
  - sensitivity analysis, 102
- level debt, 181–182
- leverage, adjustment, 29
- loan documentation
  - crafting, 45
  - negotiation/drafting, strategic
    - approaches, 45
- loans, project bonds (contrast), 145–151
  - milestone dates, provision, 43
  - operator, replacement, 42
  - reserve accounts, 47
  - revenue/offtake contract, forms, 42–43
  - revenues, control, 50
  - review/categorization, 122
  - risk
    - overview, 18
    - transfer, maximization, 103
  - site acquisition, 30
  - sponsor risk analysis, 20
  - standardization, absence, 144–145
- Project bonds, 89–90
  - amendments, 150–151
  - amortization, flexibility, 148–149
  - asset managers/owners, bond investor
    - base, 153
  - covenant waiver, 150–151
  - credit rating requirements, 149
  - execution, efficiency, 147–148
  - financing plan representation, 145–146
  - fixed pricing, 146
  - funding sources, diversification, 148
  - infrastructure debt funds, impact, 153
  - insurance company investor base, 152–153
  - investor base, 151–153
  - issuances, 144
  - local currency project bonds, 154
  - make-whole provisions, 149
  - market liquidity, 151–153
  - negative carry, 149–150
  - pension fund investor base, 152–153
  - prepayment penalties, 149
  - project loans, contrast, 145–151
- Project finance (PF)
  - agreements, 39
  - approach (transformation), Asian
    - currency crisis (impact), 65–68
  - asset class performance, 4
  - bank, usage, 81
  - bonds, 143
  - case study, Mozal Aluminum Project (Mozambique), 33–37
  - cash flow waterfall, 48
  - construction contracts, 41
  - contract
    - financing, equivalence, 18, 39
    - structure, 40

- deals
  - annual marginal default rate (S&P study), 6
  - negative social/environmental impacts, 30–31
  - structuring/negotiating errors, 18
- default rates/recovery (S&P study), 5
- due diligence, asset manager (impact), 153
- effectiveness, 61
- information reporting/monitoring, 8
- lender security
  - interest, 8–9
  - protection layers, 50
- lenders, social/environmental considerations, 30–31
- loan documentation, 39, 44–51
  - crafting, 45
  - negotiation, 44
  - negotiation/drafting, strategic approaches, 45
- loan documents, 46–51
- loans (10-year volume), 4
- market
  - developments, 177
  - size, 4
- negative environmental/social impact, 119
- operation and maintenance (O&M)
  - contracts, 42
- origins/history, 1–2
- permits, 23
- principles/application, 1
- project, strategic/essential nature, 9
- risk
  - categories, 18–19
  - risk analysis/mitigation, 17
  - sponsor usage, reason, 2–9
  - structures, 177
  - track record (emerging markets), 62
  - transaction, financial feasibility (assessment), 19
- Project finance (PF) loans
  - defaults, occurrence, 22–23
  - recovery rates, 8
  - structural features, 7–8
- Project financing
  - agreements, covenants, 50
  - lender number, minimization, 92
  - risks/challenges (emerging markets), 61
  - Proparco (BDB type), 68
  - Public Utilities Regulatory Policy Act (PURPA), 2
- Q**
- Qualified institutional buyers (QIBs), 147–148
- R**
- Ras Laffan LNG project (Qatar), 152
- Regulation 144/A issuances, 149, 150
- Regulation D private placement, 147–148
- Regulation S144A offering, 147
- Regulatory risks, 19
- Renewable energy projects, back-levered financings (usage), 180–182
- Renminbi
  - cross-border currency, preference, 172
  - financing uses, 165
  - internationalization, 164–165
- Reporting requirements, 51
- Republic of France, green bond issuer, 129
- Requests for proposals (RFPs),
  - commercial bank issuance, 87
- Reserve-based lending (RBL), usage, 27
- Reserve risk, 27
- Reserve tail, lender requirement, 27
- Retail tariffs, IPP costs (impact), 66
- Retained earnings (financial model input/output sheet), 103
- Returns on risk-weighted assets (RORWA),
  - returns enhancement, 149
- Revenue
  - contract, definition, 27–28
  - offtake agreements, 39
  - offtake contract, off-taker termination risk (avoidance), 51–52
- Revenue risk, 105
  - offtake revenue risk, 115
- Risk
  - allocation, achievement, 7
  - analysis/mitigation, 17
  - contagion effect, 20–21
  - identification/mitigation, 186
  - risk-adjusted return, 148
    - hurdle requirements, challenge, 135
    - stability, 144

## S

- Sabine Pass LNG (SPL) project (USA-Asia Energy Flows) case study  
 brownfield development project, 113  
 EPC contract, 114  
 financing, 86  
 natural gas supply, 116  
 offtake revenue risk, 115  
 project economics, 115–116  
 project financing, closure, 114  
 project overview/background, 112–113, 113–114  
 project risks, mitigation, 115
- Sales  
 contract structures, types, 28–30  
 long-term sales agreement, 28–29  
 risk, 27–30
- Sales and Purchase Agreement (SPA), 113
- Samba Drillship Oil and Gas Project (Brazil) case study, 52–60  
 acceptance risk, mitigation, 54–55  
 bankruptcy, 57–58  
 construction risk, 54–55  
 cost contingencies, 54  
 drillship construction, lump-sum turnkey contract (usage), 53  
 due diligence, conducting (importance), 59  
 international oil prices, decline, 56  
 offshore drilling market, decline, 58–59  
 operator risk, 55  
 political risk, 55–56  
 project finance risk mitigation, 54–56  
 project outcomes, 56–59  
 project overview/background, 52–54  
 refund guarantee, 54  
 revenue risk, 55
- SBM Offshore, sustainability performance, 120
- Sculpted payments, impact, 109
- Sculpting, 108–109  
 debt sizing, relationship, 104–106
- SDG. *See* United Nation Sustainable Development Goals
- Sector standardization, absence, 144–145
- Security  
 enforcement, understanding, 46  
 package, 49–51  
 impact, 8–9
- Short-tenor mini-perm facility, bank loan (equivalence), 146
- Short-term capital (hot money), impact, 63–64
- Silk Road Fund, 170–171
- Sinosure. *See* China Export and Credit Insurance Guarantee Corporation
- SMBC, project finance market involvement, 88
- Social/environmental risks, assessment/management, 124
- Soft mini-perms, 178–179
- Sovereign credit ratings  
 achievement, 152  
 exceeding, 151–152
- Sovereign risk  
 host government, impact, 69–70  
 mitigation, 71–72
- Special Economic Zones (SEZ), investment, 167
- Special purpose company (SPC), role, 39
- Special purpose vehicle (SPV), 3–4  
 financial stability, impairment, 45  
 ringfenced/bankruptcy remote nature, 9  
 role, 39
- SPL. *See* Sabine Pass LNG project (USA-Asia Energy Flows) case study
- Sponsors  
 assets/revenues, material percentage (project representation), 20  
 dual role, 25  
 equity financial model, development, 101–102  
 IRR, increase, 106  
 objectives, 103–104  
 project finance usage, reason, 2–9  
 project sponsor risk analysis, 20  
 questions, 20  
 risk, 19–21  
 risk, project risk (contagion effect), 20–21
- Stakeholders  
 alignment issues, 71  
 interference, risk, 3
- Stanchart (lead arranger), 157
- State Electricity Boards (SEBs) insolvency (India), 74
- State-owned utility off-takers, financial weakness, 67–68
- Step-in regime, usage, 8

Step-in rights, 50  
Stress testing, lender ratios, 110  
Structural mitigation, impact, 9  
Sub-surface risks, construction company avoidance, 41  
Supply  
  contracts, 43–44  
  interruptions, mitigation, 27, 44  
  risks, 26–27  
  security, importance, 44  
Sustainability project financing, SDGs (relationship), 131–134  
Sustainable Bond Principles, 131  
Sustainable infrastructure project finance/investing, 120  
Swap default, impact, 47  
**T**  
Take-or-pay contract, 28, 42  
Tax credits, size/importance, 180–181  
Tax equity  
  financing, 181  
  importance, 180–181  
Taxes (financial model input/output sheet), 103  
Termination payment obligation, 47  
Terms sheets, usage, 7–8  
Thailand  
  currency crisis, fallout/effect, 65  
  financial crisis (1997), 63–64  
Third parties, contract (assigning), 49  
Top-up financing, clean political risk exposure (assumption), 69  
Transaction costs (reduction), project finance (usage), 2  
Triggering event, occurrence, 21

**U**  
Underwriting process, certainty (reduction), 90  
Unicredit (lead arranger), 157  
United Nation Sustainable Development Goals (SDGs)  
  challenges, 132  
  impact goals, financial returns (relationship), 127  
  “SDG Impact Practices for Private Equity Funds” (Practices)  
  standards areas, 132–134  
  sustainability project financing, relationship, 131–134  
United Nation Sustainable Development Goals (SDGs), meeting, 10  
Urbanization (global challenge), 12  
US energy crisis, Enron (impact), 5  
US IPP Calpine Corp, project finance loan usage, 4

**V**  
Venezuela, creeping expropriation, 22

**W**  
Waivers, voting rights (understanding), 46  
War/riots/civil unrest (political risk), 69  
West LB, bank syndicate lead, 121  
White elephant project, 77  
Windfall project cash flows, 111  
World Bank Group, 126  
World Bank safeguards, IFC overhaul, 125–126

**X**  
Xon, project financing (avoidance), 3–4